



- ▶ Nine years of growth in the post-crisis environment has demonstrated above average economic performance for Germany with low unemployment and high material living standards.
- ▶ The German economy is nearing full employment.
- ▶ Positions in the Information and Communications Technology (ICT) sector are some of the hardest to fill vacancies in Germany. Employers experience a low supply of ICT workers due to the relatively smaller numbers of students graduating from subjects such as Computer Science and engineering or finishing vocational training in ICT occupations in Germany.
- ▶ Integrating overseas workers has been an additional challenge, as Germany still neither has an updated immigration policy reflecting recent developments – the last revision is from 2007 – nor an Immigration Act to attract skilled workers.
- ▶ Current immigration laws, though liberal, are too complex to be attractive to potential workers and employers. However, the grand coalition government for the first time wants to push through a law on the immigration of skilled workers before the end of 2018.

Current developments in the ICT labour market in Germany

Recent trends at the sector level show shortages in ICT skills supply. These shortages have the potential to affect future economic growth for Germany.

empirica's ICT labour market survey estimates the shortage to be 625,000 in 2025. One of the causes is a low supply of workers because few students choose to graduate in ICT related subject – neither in higher education nor in vocational education and training - in Germany.

One of the shortcomings of Germany's ICT skills ecosystem is the low number of ICT graduates. The ICT graduates comprise the primary source of supply for employers. Since recruitment criteria depend on (academic) qualifications, shortages are likely to increase.

Women are underrepresented in the ICT sector. Women's share in the German ICT workforce is lower than in France, Sweden and fifteen other EU states. The share of women in the German tech

workforce is roughly 16 percent. In France and Sweden, women make up 18 percent and 22 percent of the tech workforce respectively.

There have been great strides at the policy level to target ICT skills shortages. ICT skills development policies in Germany are part of national digital strategies, such as the Digital Agenda 2014-2017 and the Digital Strategy 2025. Recent policy measures have introduced modernization targets for digital education. The 'Education in the Digital World' strategy is one of these measures. It aims to adapt curricula, learning methods and teacher training to digital changes.

A key action for education policy in Germany is to reduce educational inequalities. Structural reforms of the secondary school system have improved the level of inequalities. These reforms introduced national standards and standard-based testing for students. The aim is to provide dedicated resources and school-based support to disadvantaged schools.

Germany's strength lies in its well-established Dual Vocational Education and Training (VET) system. VET graduates form a key part of Germany's ICT skills supply. All key stakeholders contribute to the

development of occupational profiles in Dual VET. These profiles lead to direct labour market entry for individuals from diverse backgrounds.

Key Recommendations

Target training programmes to reflect employer demand for skills.

- Skills policies should target jobs with high vacancy rates. In Germany, many vacancies do not require academic degrees. There should be a responsive ICT framework with active monitoring of existing and new ICT skills profiles.
- The ICT sector should adopt a “skills profile” approach that ensures skills training sufficiently reflects employer demand. This also encourages employers to take part in creating and revising skills profiles.

Public and private entities should cooperate to deliver effective ICT skills training programmes.

- Local employment agencies can play an important role in streamlining training and employability outcomes for unemployed workers. Well-financed training programmes supported by extensive partner networks have managed to achieve successful results in integrating diverse groups into the labour market. By including all stakeholders, policy makers can ensure better results for effective training.

Establish an incentivised framework for business-education partnerships.

- Business-education partnerships are resource-dependent and need considerable public and private investment. It is challenging for education and training providers to find employers who are willing to train and hire workers. A better incentive framework can encourage such partnerships.

Adopt strategies to promote the participation of women in STEM fields.

- Tailored approaches should be developed to increase the participation of women in STEM fields. Strategies for engagement of women into STEM education and careers should be developed for early schooling. Government initiatives for the integration of women into STEM fields remain broad and unaccompanied by strategies aimed at raising awareness at early schooling. This is a potential area for development.
- Part of the task is to encourage greater partnership for joint activities to advance women in ICT fields. One example is the United Nations' 'International Girls in ICT Day' celebrated each year to promote equal access for women and girls in ICT fields. Important stakeholders can assist in adapting such campaigns to the national and local level.

Develop strategies to promote digital education for early schooling across Germany.

- Campaigns should target ICT skills development of younger cohorts in early schooling. Awareness-raising intervention mechanisms encourage young people to choose careers in technology. An example of such a campaign is the 'Informatik Biber (Informatics Beaver)' competition for children, which is an annual competition for coding and other tech activities for school-aged children.

Provide greater opportunities for lifelong learning.

- Another key area for public action is the up-skilling of the existing workforce. Adult learners with incomplete education or those who face a lower market demand for skills at risk of obsolescence, are vulnerable to long-term unemployment.
- The challenge of integration is also relevant here. Large numbers of older refugees who arrived in Germany do not have an extensive educational or training background. Training in ICT skills provides them with opportunities to up-skill in newer skill profiles. This can also help in the social and economic upward mobility of vulnerable populations.

Further information

For further details about our survey results and methodology, you can request access to our full report, forthcoming in 2018. For questions and queries, please contact:

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